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**Abstract****Quasi-Differential Modulation/Demodulation Method for  
Multi-Amplitude Digital Modulated Signals and OFDM System**

The invention proposes the separate processing of the phase and amplitude of multi-amplitude digital modulation techniques, such as a QAM. The phases are differentially modulated and the amplitudes coherently processed. Also proposed is a method to correct the amplitude distortion of the symbols on each subcarrier, either from the QAM signal itself or from any PSK signal, if available. The invention shows that differential modulation/demodulation of multi-amplitude signals with no equidistant phases such as QAM is possible. Complex equalizer means to perform a channel estimation is no more needed as for coherent systems. Further, no pilot subcarriers are needed, thus the bandwidth efficiency is much higher. Furthermore, the frequency synchronization of differential demodulated signals is less complex. An implementation proposal of the new modulation/demodulation technique is described.

(Fig. 1)